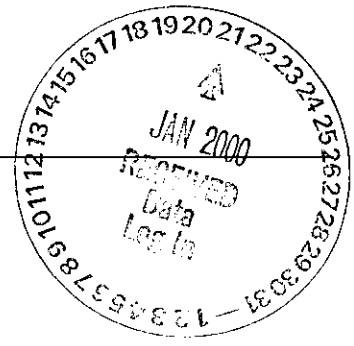
H0500 TMA/RECRA

0052630

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information



Recra LabNet Philadelphia
Analytical Report
****REVISION****

Client : TNU-HANFORD B99-085
RFW# : 9908L851
SDG# : H0500
SAF# : B99-085

W.O. # : 10985-001-001-9999-00
Date Received: 08-24-99

INORGANIC CASE NARRATIVE

This report is revised matrix quality control analysis for Nitrate Nitrite.

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate, Nitrite and Phosphate which were received past hold and Nitrate Nitrite quality control analysis was performed past hold.

4. The cooler temperature was recorded on the chain-of-custody.

5. The method blanks were within method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Nitrite recovery which was below the control limits and Sulfate which was above the limits.

8. The replicate analyses were within the 20% RPD control limit with the exception of Phosphate and Sulfate.

9. Poor matrix spike recoveries and replicate reproducibility may be attributed to the analyses being performed using improperly preserved samples. Chloride, Fluoride, Phosphate, Nitrite and Nitrate were analyzed from a sulfuric acid preserved bottle and Sulfate was analyzed from a nitric acid preserved bottle; the method used for these analyses states the requirement of an unpreserved sample matrix.

Pat Ec

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-14-00
Date

njp\i08-851

Recra LabNet Philadelphia

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chormatography:			
___Bromide ✓Chloride ✓Fluoride	✓ 300.0	___ 9056	
✓Nitrite ✓Nitrite ✓Phosphate	✓ 300.0	___ 9056	
✓Sulfate ___Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
✓Nitrate-Nitrite ___Nitrate ___Nitrite	✓ 353.2		
Ammonia	✓ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.4		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1 ___ 376.2	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved ___Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
___Total ___Dissolved ___Suspended	___ 160.4		
Other:		**Method:**	

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 12/13/99

CLIENT: TNU-HANFORD B99-085 RECRA LOT #: 9908L851

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0W679	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.35	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.88	MG/L	0.25	1.0
		Sulfate by IC	0.66	MG/L	0.25	1.0
		Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/13/99

CLIENT: TNU-HANFORD B99-085 RECRA LOT #: 9908L851

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC073-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	99LN3A44-MB1	Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
BLANK10	99LN3059-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	99LAMA33-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0

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INORGANICS ACCURACY REPORT 12/13/99

CLIENT: TNU-HANFORD B99-085 RECRA LOT #: 9908L851

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0W679	Chloride by IC	4.4	0.00	5.0	88.0	1.0
		Fluoride by IC	11.8	0.00	10.0	117.7	1.0
		Nitrite by IC	3.6	0.35	5.0	65.9	1.0
		Nitrate by IC	5.1	0.25u	5.0	101.1	1.0
		Phosphate by IC	4.9	0.88	5.0	80.3	1.0
		Sulfate by IC	12.4	0.66	5.0	234.1	1.0
		Nitrate Nitrite	0.50	0.02u	0.50	99.6	1.0
		Ammonia, as N	1.1	0.10u	1.0	108.0	1.0
BLANK10	99LIC073-MB1	Chloride by IC	4.8	0.25u	5.0	95.5	1.0
		Fluoride by IC	10.4	0.50u	10.0	103.6	1.0
		Nitrite by IC	4.8	0.25u	5.0	96.5	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.3	1.0
		Phosphate by IC	4.9	0.25u	5.0	99.0	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.4	1.0
BLANK10	99LN3A44-MB1	Nitrate Nitrite	0.50	0.02u	0.50	100.4	1.0
		Nitrate Nitrite MSD	0.50	0.02u	0.50	100.6	1.0
BLANK10	99LN3059-MB1	Nitrate Nitrite	0.47	0.02u	0.50	94.6	1.0
BLANK10	99LAMA33-MB1	Ammonia, as N	1.1	0.10u	1.0	110.0	1.0
		Ammonia, as N MSD	1.1	0.10u	1.0	110.0	1.0

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INORGANICS DUPLICATE SPIKE REPORT 12/13/99

CLIENT: TNU-HANFORD B99-085 RECRA LOT #: 9908L851

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	99LN3A44-MB1	Nitrate Nitrite	100.4	100.6	0.20
BLANK10	99LAMA33-MB1	Ammonia, as N	110.0	110.0	0.00

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/13/99

CLIENT: TNU-HANFORD B99-085 RECRA LOT #: 9908L851

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0W679	Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.35	0.30	12.9	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.88	0.37	82.1	1.0
		Sulfate by IC	0.66	0.43	42.1	1.0
		Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-085

DATE RECEIVED: 08/24/99 RFW LOT # :9908L851

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W679						
CHLORIDE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
CHLORIDE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
CHLORIDE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
FLUORIDE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
FLUORIDE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
FLUORIDE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRITE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRITE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRITE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRATE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRATE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRATE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
PHOSPHATE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
PHOSPHATE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
PHOSPHATE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
SULFATE BY IC	001	W	99LIC073	08/19/99	09/01/99	09/01/99
SULFATE BY IC	001 REP	W	99LIC073	08/19/99	09/01/99	09/01/99
SULFATE BY IC	001 MS	W	99LIC073	08/19/99	09/01/99	09/01/99
NITRATE NITRITE	001	W	99LN3A44	08/19/99	09/09/99	09/09/99
NITRATE NITRITE	001 REP	W	99LN3059	08/19/99	12/08/99	12/08/99
NITRATE NITRITE	001 MS	W	99LN3059	08/19/99	12/08/99	12/08/99
AMMONIA	001	W	99LAMA33	08/19/99	09/03/99	09/03/99
AMMONIA	001 REP	W	99LAMA33	08/19/99	09/03/99	09/03/99
AMMONIA	001 MS	W	99LAMA33	08/19/99	09/03/99	09/03/99
LAB QC:						
CHLORIDE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
CHLORIDE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99
FLUORIDE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
FLUORIDE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99
NITRITE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
NITRITE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99
NITRATE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
NITRATE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-085

DATE RECEIVED: 08/24/99 RFW LOT # :9908L851

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
PHOSPHATE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99
SULFATE BY IC	MB1	W	99LIC073	N/A	09/01/99	09/01/99
SULFATE BY IC	MB1 BS	W	99LIC073	N/A	09/01/99	09/01/99
NITRATE NITRITE	MB1	W	99LN3A44	N/A	09/09/99	09/09/99
NITRATE NITRITE	MB1 BS	W	99LN3A44	N/A	09/09/99	09/09/99
NITRATE NITRITE	MB1 BSD	W	99LN3A44	N/A	09/09/99	09/09/99
NITRATE NITRITE	MB1	W	99LN3059	N/A	12/08/99	12/08/99
NITRATE NITRITE	MB1 BS	W	99LN3059	N/A	12/08/99	12/08/99
AMMONIA	MB1	W	99LAMA33	N/A	09/03/99	09/03/99
AMMONIA	MB1 BS	W	99LAMA33	N/A	09/03/99	09/03/99
AMMONIA	MB1 BSD	W	99LAMA33	N/A	09/03/99	09/03/99

RECRA LabNet Use Only: 9908L851

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

ALL FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) ~~perrone wet lab~~ metals dig.

Client: TNU-Hanford B99-085
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 8/24/99 Date Due: 9/23/99
Account #:

	VOA	BNA	Pest/PCB	Herb			Metal	CN			
Refrigerator #	1	6								6	
#/Type Container Liquid	3g	2g								2p	
#/Type Container Solid					W/VOA						
Volume Liquid	40	Ltr								Ltr	
Volume Solid											
Preservatives	HCl	-								HNO3	
RECRA LabNet Use Only	0224H	0225H			05CSC		Met(1)		Anag(1)	1N3N2 / 1NH3N	

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0224H	0225H			05CSC		Met(1)		Anag(1)	1N3N2/1NH3N
001	BØW679			W	8/19/99	0715	✓	✓			✓		✓		⊗	✓
002	BØW680			W	↓	0510	✓									

Run Matrix QC

Special Instructions:

saf # B99-085

8/27/99 added Be to metals per client

COMPOSITE WASTE

DATE/REVISIONS: Logged 8/26/99 - run from pres. bottle

1. Anag(1) = (ICCL, ICFL, ICNO2, ICNO3, ICPO4)
2. → ICSO4, ISFD, IPH - not logged
3. improperly preserved bottle.
4. Met(1) = As, Ba, Cd, Cr, Cu, Pb, Ni, Se,
5. Ag, V, Zn, Be
6. * 493579528602

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # *
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved Y or (N)
5) Received Within Holding Times Y or (N)

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp 3.7 C

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FedEx	Janson	8/24/99	0930		REWRITTEN		
					ORIGINAL		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: ICNO2, ICNO3, ICPO4, IPH out

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-085-01	Page 1 of 1

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
Doug Bowers	Chris Cearlock 372-9574	TRENT, SJ	7N / 45 Days
Project Designation	**Sampling Location**	**SAF No.**	
200 Area Source characterization - 200-CW-1 OU - QC Sa	200 East	B99-085	
Ice Chest No.	**Field Logbook No.**	**Method of Shipment**	
96 006	EL-1511	Federal Express	
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	
~~TMA/RECRA~~ H70 8-19-99	A990223	423579528602 -3.7	
		COA B20CW1 671C	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	HCl to pH <2 Cool 4C	HNO3 to pH <2					
	Type of Container	aG	P	P	aGs*	P					
	No. of Container(s)	2	2	2	3	3					
Special Handling and/or Storage	Volume	1000mL	1000mL	1000mL	40mL	500mL					
SAMPLE ANALYSIS		Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions	Gross Alpha, Gross Beta	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol, Ethanol)	See item (2) in Special Instructions					

Sample No.	Matrix *	Sample Date	Sample Time									
B0W679	Water	8-19-99	0715	X	X		X	X				
B0W680	Water	8-19-99	0510				X					

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	Brent Porter	8/19/99 15:00
Received By	Refer 1A	8/19/99 16:00
Relinquished By	REF 1A	82399 1100
Received By	[signature]	82399 1100
Relinquished By	[signature]	82399 1100
Received By	FED EX	
Relinquished By	[signature]	
Received By	Jonson	8/24/99 0930

SPECIAL INSTRUCTIONS

See Chain of Custody comments on SAF for special instructions.

(1) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Ammonia - 350.3; Sulfides - 9030; pH (Water) - 9040
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc)

COLLECTOR UNAVAILABLE TO SIGN COC

From non rad area

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time